

August 31, 2020

Arthur Burbank  
USDA Forest Service  
4350 South Cliffs Dr.  
Pocatello, ID 83204

**Subject:       Biological Selenium Removal Treatment Technology  
                  Water Treatment Pilot Study  
                  July 2020 Progress Report**

Dear Art,

This progress report summarizes key activities in July 2020 associated with Phase 2 of the Water Treatment Pilot Study located near Hoopes Spring. This Pilot Study is being conducted as part of the Smoky Canyon Mine Remedial Investigation/Feasibility Study (RI/FS) to provide information on the effectiveness of the active biological treatment system in removing selenium and other COPCs from South Fork Sage Creek Springs and Hoopes Spring.

Work related to the approved Phase 2 Pilot Study continues at the site in accordance with the *Final Phase 2 Pilot Study Work Plan and Sampling and Analysis Plan, Ultra-Filtration/Reverse Osmosis and Biological Selenium Removal Fluidized Bed Bioreactor Treatment Technology* (Phase 2 WP/SAP).

### **Identification of Deliverables and Data Transmittals**

There were no outstanding deliverables or transmittals for the month of July. At the time of this report, we have received laboratory data for Week 127. Preliminary laboratory data are presented in Table 1. The field data for the Week 127 sampling events is summarized in Table 2.

### **Completed Activities**

The following activities associated with the Phase 2 Pilot Study were completed in July 2020:

- Continued system operation and treatment of selenium.

No analytical samples were collected Week 125 due to settling problems in the clarifier and limited operations of the system. The Treatment System Pilot (TSP) influent total selenium concentration for Week 127 was 173 ug/L. The Treatment System Pilot effluent total selenium concentration for Week 127 was 21.6 ug/L. The average removal efficiency for July was approximately 88% for total selenium removal.

The average flow of the TSP for the month of July was 1,215 gpm. The lower average flow this month has been caused by down time associated with difficulties with settlement of the biology in the post treatment system. Since full scale operations began in early December 2017 approximately 2.085 billion gallons of impacted water has been treated. The mass of selenium

removed from December 2017 through July 2020 is approximately 2,270 pounds. 208 235-5600 Business

### **Upcoming Activities**

The following activities associated with the Phase 2 Pilot Study are planned through August 2020:

- Continue system monitoring in accordance with the sampling and analysis plan.
- The approved iron co-precipitation pilot project is slated to begin in August 2020. The currently approved compliance sampling schedule will be utilized to collect the data. As data becomes available, it will be reported to the Forest Service in these monthly reports.

Please contact me if there are questions regarding this monthly progress report.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey Hamilton", with a stylized flourish at the end.

Jeffrey Hamilton  
Environmental Engineer

cc:

Arthur Burbank – USFS, 410 East Hooper, Soda Springs, ID 83276  
Sherri Stumbo – USFS, 4350 South Cliffs Dr., Pocatello, ID 83204  
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Chad Gentry – J.R. Simplot Company, email only  
Ron Quinn – J.R. Simplot Company, email only  
Delmer Cunningham – J.R. Simplot Company, email only  
Andy Koulermos – Formation Environmental, email only  
Lily Vagelatos – Formation Environmental, email only  
Jeremy Aulbach – Brown and Caldwell, email only

**Table 1**  
**Laboratory Results Focused Analyte List**

Hoopes Springs Water Treatment Plant Pilot Study  
Phase 2, Performance Monitoring

|                           |       | Week 127           |                           |                    |
|---------------------------|-------|--------------------|---------------------------|--------------------|
| Station >>                |       | Influent           | Ultra Filtration Backwash | Effluent           |
| Sample ID >>              |       | SC0720-LSSHS-IN001 | SC0720-LSSHS-UFB001       | SC0720-LSSHS-EF001 |
| Date >>                   |       | 7/22/2020          |                           |                    |
| Analyte                   | Units |                    |                           |                    |
| General Chemistry         |       |                    |                           |                    |
| Ammonia, as N             | mg/L  | 0.026 U            | 0.026 U                   | 0.0725             |
| Biochemical Oxygen Demand | mg/L  | 2 U                | 2 U                       | 2 U                |
| TSS                       | mg/L  | 2 U                | 2 U                       | 2 J                |
| Nutrients                 |       |                    |                           |                    |
| Nitrate, as N             | mg/L  | 0.44               | 0.16                      | 0.48               |
| Sulfide                   | mg/L  | 1 U                | 1 U                       | 1 U                |
| Phosphorus, Total         | mg/L  | 0.0465             | 0.0256                    | 0.0861             |
| Metals and Metalloids     |       |                    |                           |                    |
| Selenium, Dissolved       | mg/L  | 0.171              | 0.0341                    | 0.0211             |
| Selenium, Total           | mg/L  | 0.173              | 0.0377                    | 0.0216             |

**Notes**

Results presented are preliminary, and have not been validated at the time of this report.

U - Analyte not detected above the method detection limit (MDL).

J - Result is estimated.

**Table 2**  
**Field Water Quality Data**

Hoopes Springs Water Treatment Plant Pilot Study  
Phase 2, Performance Monitoring

|                           |                     | Parameter >> | Dissolved Oxygen | ORP | pH   | SC       | Temperature | Turbidity |
|---------------------------|---------------------|--------------|------------------|-----|------|----------|-------------|-----------|
|                           |                     | Units >>     | mg/L             | mV  | SU   | umhos/cm | C           | NTU       |
| Station                   | Sample ID           | Date         |                  |     |      |          |             |           |
| <b>Week 127</b>           |                     |              |                  |     |      |          |             |           |
| Influent                  | SC0720-LSSHS-IN001  | 7/22/2020    | 13.15            | 106 | 6.91 | 494      | 15.5        | 1         |
| Ultra Filtration Backwash | SC0720-LSSHS-UFB001 | 7/22/2020    | 10.09            | 218 | 6.7  | 131      | 13.72       | 2.4       |
| Effluent                  | SC0720-LSSHS-EF001  | 7/22/2020    | 9.97             | 128 | 6.84 | 524      | 13.41       | 1.3       |

Notes: